2 箇所の生育地でのシモフリゴケのフェノロジー比較

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A comparative study on the phenology of *Racomitrium lanuginosum* on two distinct habitats

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Bryophytes show a number of phenological patterns that reflect their adaptation to a wide variety of environments (e.g., Stark 2002). A regulating effect of environmental factors on bryophyte reproduction has been established for several species (Benson-Evans 1964).

The length of the growth period is thought to be one of the regulating factor controlled by some environments such as temperature and water availability. In this study, we focused on the effect of the length of the growth period controlled by snow cover.

We compared the seasonality of development of gametangia and sporophytes of *Racomitrium lanuginosum* in two distinct habitats, seasonally snow-covered site (*ca*. 2200 m alt. on Mt. Fuji) and snow free site (*ca*. 645 m alt. on Mt. Mihara) to clarify the effect of the length of growth period. The number of inflorescences and the number, size and developmental stages of male and female gametangia and sporophytes were recorded.

The reproductive characteristics of *R. lanuginosum* on two study sites are summarized as follows:

(i) Archegonia and sporophytes develop faster in snow-covered site than snow free site.
(ii) Antheridia take longer time to develop in snow-covered site than snow free site.
(iii) The timing of fertilization is the same in each sites.
(iv) The dispersal of sperms initiate earlier than the maturation of ova and continue over the long term in snow free site.
(v) The dispersal of spore initiates in winter and continues until spring in snow free site.

On Mt. Fuji, although the development of antheridia and sporophytes stopped under the snow cover for 4.5-months, maturation of both gametangia and spore dispersal occurred in June, the general season for fertilization and spore dispersal on bryophytes. On the other hand, peculiar phenology patterns that the release of sperms started from long before the maturation of ova and the spores dispersal started from winter, were observed on Mt. Mihara. *R. lanuginosum* is thought to be a well adaptive species for seasonally snow covered site.

References

Benson-Evans, K, Physiology of the reproduction of bryophytes, The Bryologist, 67, 431-445, 1964.
Stark, L. R, Phenology and its repercussions on the reproductive ecology of mosses, The Bryologist, 105(2), 204-218, 2002